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CALIFORNIA EARTH SCIENCE CORPORATION

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Fault Tectonics and Earthquake Hazards in the Peninsular
Ranges, Southern California, EREP Investigation 463

NASA, Ames Research Center
Mail Code 241-1
Moffett Field, CA 94035

Attention: Mr. Gabriel Fox
Contracting Officer

Gentlemen:

California Earth Science Corporation (CalESCO) is pleased to submit its 11th
Monthly Progress Report on the application of Skylab imagery to analysis of
fault tectonics and earthquake hazards in the Peninsular Ranges, southern
California under NASA Contract No. NAS 2-7698.

Summary Outlook

The principal plans for the immediate future are to continue analysis of image
from SL1/SL2 and SL3. The milestone plan provides a time-oriented schedule of
the entire effort to be performed.

Significant Progress

1. The abstract of a paper presenting the results of the research to date was
submitted and accepted for presentation at "The First International Conference
on the New Basement Tectonics," Salt Lake City, June 3-7, 1974.
2. A test was prepared and given to 35 students in a field geology class at
UCLA to test their ability to "see" faults and other geologic and linear
features on normal and pseudocolor transformations of a satellite image.
The results are being analyzed.
3. Airphoto and field work were completed on a prominent northeast-trending
Skylab linear in the San Ysidro Valley area in the Peninsular Ranges; this
feature is a previously unmapped fault approximately 10 miles long in

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basement terrane. Airphoto analysis of a similar appearing Skylab linear in the Thing Valley area of the Peninsular Ranges was initiated. Field evidence of faulting along the Skylab linear was discovered at the southeast end of Thing Valley.

4. A systematic program of measuring shear zones exposed in road cuts in the Peninsular Ranges was initiated. The shear directions measured will be compared with the directions of linear features observed on Skylab images of the region.
5. Analysis of SL3 S190B photos of the eastern Peninsular Ranges was continued.
6. From April 2 to April 5 field work was conducted in the El Centro-Mexicali area in an attempt to trace the San Jacinto fault as suggested by the SL2 image northward of its known location in Mexico and into the U.S. The geothermal steam field at Cerro Prieto was found to lie on the linear in the SL2 image. Attempts to find evidence for the fault north of the border by examining exposures of Lake Cahuilla beds along the New River were unsuccessful. Further work on this project is being postponed at least until other promising areas in the Peninsular Ranges have been investigated.

Expected Accomplishments, Current Month

1. The results of the pseudocolor test at UCLA will be analyzed.
2. Field work and airphoto analysis of the Thing Valley linear will be continued.
3. Additional S0192 data will be ordered.

Travel Summary and Plans

Field checks of faults imaged in SL1/SL2 and SL3 will continue during May.

Very truly yours,

CALIFORNIA EARTH SCIENCE CORPORATION

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